MONITORING THE EFFECTIVENESS OF TMDL IMPLEMENTATION WITH THE OREGON WATER QUALITY INDEX (OWQI)

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Biographical Sketch of Author

Curtis coordinates Oregon DEQ's ambient water quality monitoring program. Data generated from this program is used to evaluate water quality status and trends for the OWQI, as well as for 305(b) and 303(d) reports. Annual OWQI reports available at http://www.deq.state.or.us/lab/WQM/WQI/wqimain.htm. These reports, and the use of the OWQI as an environmental indicator in the Oregon Progress Board's "Oregon Benchmarks Report", inform legislators, policy makers, and the public. Curtis has published or presented OWQI information to the National Water Quality Monitoring Council, the American Water Resources Association, the Environmental Performance Institute, and the Region 10 Pollution Prevention Roundtable.

Abstract

The Oregon Water Quality Index (OWQI) provides a simple and concise method for monitoring the effectiveness of Total Maximum Daily Load (TMDL) implementation. The OWQI expresses water quality by integrating measurements of eight water quality variables. The parameters for which TMDLs have been established in Oregon are well represented by the OWQI. OWQI results can be used to show water quality variation both spatially and temporally, providing a context for interpretation of water quality conditions and trends. The effectiveness of TMDLs in improving general water quality can be determined by comparing water quality trends in basins where TMDLs have been developed and implemented to those where they have not. The greatest number of improving stream sites, and the sites showing the greatest magnitude of improvement are in the basins where TMDLs have been developed and implemented. After identifying general trends with the OWQI, individual variables may be examined to determine specific changes that can be related to TMDL implementation. Construction of the OWQI will be described, and various applications of the OWQI as a measure of the effectiveness of TMDL implementation will be discussed.